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| FISH & RICHARDSON P.C. (BO) | | EXAMINER | | |
| P.O. BOX 1022 | | CHUO, TONY SHENG HISLNG | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

| | | |
|------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/664,818 | Applicant(s) GUAY, GORDON G. |
| | Examiner Tony Chu | Art Unit 1729 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 17 February 2010.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-15 and 20-26 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-15 and 20-26 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/88/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 2/17/10 has been entered.

Response to Amendment

2. Claims 1-15 and 20-26 are currently pending. Claims 16-19 have been cancelled. The amended claims do overcome the previously stated 102 and 103 rejections. However, upon further consideration, claims 1-15 and 20-26 are rejected under the following new 112, 102, and 103 rejections.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 11-15 and 23-25 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The "surface area enhanced planar vaporization membrane" critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Claim 11 recites the limitation "to enhance a delivery rate of the liquid source of oxidizable fuel in a vapor phase to the egress port of the cartridge". The surface area enhanced planar vaporization membrane is essential for the fuel cartridge to be able to deliver a liquid source of oxidizable fuel in a vapor phase. The specification does not disclose any embodiments of a fuel cartridge that does not include a vaporization membrane that delivers a liquid source of oxidizable fuel in a vapor phase.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 11-15 and 23-25 are rejected under 35 U.S.C. 102(a) (e) as being anticipated by Kamo et al (US 2003/0059659).

Regarding claim 11, the Kamo reference discloses a fuel container "1" (fuel cartridge) that supplies a source of fuel to a fuel cell, the fuel container comprising: a housing "1" that defines a fixed interior space to confine and be in contact with an aqueous methanol solution (liquid source of an oxidizable fuel) (paragraph [0163] and Fig. 17); wherein the housing "1" has walls that define the fixed interior space and are made of SUS 304 (thermally conductive material) (paragraph [0146]); wherein the diffusion hole structure "3" (fuel egress port) is supported by one of the walls of the housing of the container (paragraph [0045] and Fig. 17). Examiner's note: It is the position of the examiner that the broadest reasonable interpretation of a "fuel egress port" is a structure with an opening that allows fuel to exit from the container. Therefore, the "diffusion hole structure" taught by Kamo can be construed as a "fuel egress port". In addition, the portion of the wall adjacent to the interconnector "4" (Fig. 17) is inherently capable of sinking heat generated from external components to enhance a delivery rate of the liquid source of oxidizable fuel in a vapor phase to the egress port of the container.

Regarding claim 12, it also discloses methanol fuel cell power generation equipment (paragraph [0156]).

Regarding claim 13, it also discloses the remaining portions of the walls of the housing that are coated with an epoxy resin coating material (thermally insulating material) (paragraph [0148]).

Regarding claims 14 and 15, it also discloses a portion of the wall adjacent to the diffusion hole structure "3" (fuel egress port) comprising SUS 304 (thermally conductive material/metal) (paragraph [0146] and Fig. 17).

Regarding claims 23-25, it also discloses providing a compact power source most suitable for portable use as well as portable electronics devices using the compact power source, wherein the power source is a compact fuel cell with a fuel container (paragraph [0015]), wherein the fuel container delivers methanol to the diffusion hole structure "3" (paragraph [0021],[0045]). Examiner's note: the limitation "is configured to be disposed adjacent a heat dissipating element of the electronic device" is construed as intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. A portion of the wall of the fuel container taught by Kamo is capable of being disposed adjacent a heat dissipating element of an electronic device.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-10 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirsch et al (US 2004/0209133) in view of Kamo et al (US 2003/0059659).

Regarding claims 1, 3, and 10, the Hirsch reference discloses a fuel tank "210" (fuel container) that supplies a source of fuel to a direct methanol fuel cell, wherein the fuel tank inherently comprises a housing defining a fixed interior space (paragraph [0007],[0052] and Fig. 2); wherein a first component of the shutter assembly "402a" (fuel egress port/fuel delivery regulation assembly) is located within the fuel tank which implies that the first component is supported by the housing of the fuel tank (paragraph [0057]); wherein a methanol delivery film, MDF, "212" (surface area enhanced planar vaporization membrane) is contained within the fuel tank, wherein liquid fuel from fuel tank passes through the methanol delivery film "212" and undergoes a phase change and becomes a vapor which implies that a substantial fixed portion of the fixed interior space of the housing and the methanol delivery film are in direct contact with the liquid fuel, wherein a fuel delivery regulation assembly "220" (fuel egress port) controls the amount of vaporous fuel that travels from the vapor chamber of the fuel tank (paragraph [0052]). Examiner's note: It is the position of the examiner that the broadest reasonable interpretation of a "fuel egress port" is a structure with an opening that allows fuel to exit from the container. Therefore, the first component "402a" comprising apertures "404a" taught by Hirsch can be construed as a "fuel egress port".

However, Hirsch et al does not expressly teach at least a portion of the wall of the housing being composed of a thermally conductive material (claim 1), wherein the at

least a portion of a wall of the housing being comprised of a thermally conductive material is comprised of a metal (claim 3), wherein the at least a portion of a wall of the housing being comprised of a thermally conductive material sinks heat to enhance a delivery rate of methanol in a vapor phase across the membrane to deliver the vapor at the egress port of the container (claim 10). The Kamo reference discloses a fuel container that is made of SUS 304 (stainless steel metal/thermally conductive material) (paragraph [0146]). Examiner's note: Regarding claim 10, examiner takes the position that fuel container walls made of a stainless steel metal are capable of sinking heat to enhance a delivery rate of methanol in a vapor phase across the methanol delivery film (membrane) of Hirsch to deliver the vapor at the egress port of the container.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the disclosure of Kamo indicates that SUS 304 is a suitable material for use as fuel container housing walls. The selection of a known material based on its suitability for its intended use has generally been held to be *prima facie* obvious (MPEP §2144.07). As such, it would be obvious to use SUS 304.

Regarding claim 2, Hirsch et al also discloses a MDF that is fabricated of polyurethane (polymer membrane) (paragraph [0070]).

Regarding claim 4, Hirsch et al does not expressly teach the remaining portions of walls of the housing that are thermally insulating. The Kamo reference discloses an insulation layer "20" that is coated on an outer surface of a fuel container "1" (paragraph [0148]), wherein the portion of the wall of the housing adjacent to the diffusion hole

structure is thermally conducting and the remaining portions of the walls of the housing are thermally insulating (Fig. 17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Hirsch fuel tank to include the remaining portions of walls of the housing that are thermally insulating in order to provide a fuel container that prevents a leakage of liquid fuel by insulating the outside surface of the fuel container (paragraph [0155]).

Regarding claim 5, Hirsch et al also discloses shutter assembly components "402a" that are comprised of a metal (thermally conductive material) such as stainless steel (paragraphs [0059],[0060]). Examiner's note: the shutter assembly component is construed as a portion of a wall of the housing disposed adjacent the fuel egress port of the container.

Regarding claim 6-9, Hirsch et al also discloses a fuel tank that is a fuel cartridge (fuel reservoir) containing a liquid fuel such as methanol (paragraph [0050]).

Regarding claims 20 and 22, Hirsch et al also discloses direct oxidation fuel cell systems (which include fuel tanks or fuel cartridges) for portable electronic devices (paragraph [0011]). Examiner's note: The limitation "is configured to be disposed adjacent a heating dissipating element of the electronic device" is construed as being intended use. The Hirsch fuel tank wall is capable of being disposed adjacent a heating dissipating element of a portable electronic device depending on the desired orientation of the fuel tank/fuel cartridge in the portable electronic device.

Regarding claims 21 and 22, Hirsch et al also discloses a fuel tank that delivers methanol to the fuel delivery regulation assembly (fuel egress port) (paragraphs [0048],[0052]).

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamo et al (US 2003/0059659) in view of Hirsch et al (US 2004/0209133). The Kamo reference is applied to claim 11 for reasons stated above.

However, Kamo et al does not expressly teach a surface area enhanced planar vaporization membrane residing in the cartridge. The Hirsch reference discloses a fuel cartridge comprising a methanol delivery film (surface area enhanced planar vaporization membrane) (paragraph [0050]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Kamo fuel container to include a surface area enhanced planar vaporization membrane residing in the container in order to allow for the use of high concentration fuel that is delivered at a constant rate (paragraphs [0012],[0014]).

Response to Arguments

10. Applicant's arguments with respect to claims 1-15 and 20-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571)272-0717. The examiner can normally be reached on M-F, 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ula Ruddock can be reached on (571) 272-1481. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

/Ula C Ruddock/
Supervisory Patent Examiner, Art Unit 1795